

Homework 1.3

Date _____

Solve each system by elimination.

opp :: add

$$\begin{array}{r} 5x - 2y = -26 \\ + (-5x + y = 23) \\ \hline -y = -3 \end{array}$$

$$y = 3$$

$$5x - 2(3) = -26$$

$$\frac{5x}{5} = -\frac{20}{5}$$

$$x = -4$$

$$\begin{array}{r} 3x + 3y = -3 \\ - (2x + 3y = 5) \\ \hline x = -8 \end{array}$$

$$3(-8) + 3y = -3$$

$$\begin{array}{r} -24 + 3y = -3 \\ + 24 \\ \hline 3y = -21 \end{array}$$

$$y = -7$$

 $\therefore \text{P}_{\text{o}}\text{I} (-8, -7)$

$$\begin{array}{r} (8x - 5y = -8) \times 2 \\ 16x + 2y = -16 \end{array}$$

$$\begin{array}{r} 16x - 10y = -16 \\ - (16x + 2y = -16) \\ \hline -12y = 0 \end{array}$$

$$y = 0$$

$$8x - 5(0) = -8$$

$$\begin{array}{r} 8x = -8 \\ \frac{8x}{8} = \frac{-8}{8} \end{array}$$

$$x = -1$$

 $\therefore \text{P}_{\text{o}}\text{I} (-1, 0)$

$$\begin{array}{r} 8x + 10y = 26 \\ + (-2x - 10y = -14) \\ \hline 6x = 12 \end{array}$$

$$x = 2$$

$$8(2) + 10y = 26$$

$$\begin{array}{r} 16 + 10y = 26 \\ -16 \\ \hline 10y = 10 \end{array}$$

$$\frac{10y}{10} = \frac{10}{10}$$

$$y = 1$$

 $\therefore \text{P}_{\text{o}}\text{I} \text{ is } (2, 1)$

$$-9x - 3y = 24$$

$$- (-9x + y = -8)$$

$$\begin{array}{r} -4y = 32 \\ \frac{-4y}{-4} = \frac{32}{-4} \end{array}$$

$$y = -8$$

$$-9x - 3(-8) = 24$$

$$\begin{array}{r} -9x + 24 = 24 \\ -24 \\ \hline -9x = 0 \end{array}$$

$$x = 0$$

 $\therefore \text{P}_{\text{o}}\text{I} (0, 8)$

$$-2x + 7y = 3 \rightarrow -2x + 7y = 3$$

$$2(x + y = 12) \rightarrow + 2x + 2y = 24$$

$$9y = 27$$

$$y = 3$$

$$x + 3 = 12$$

$$x = 9$$

 $\therefore \text{P}_{\text{o}}\text{I} \text{ is } (9, 3)$

$$7) \begin{cases} 8x + 8y = 24 \\ 9x - 4y = 27 \end{cases} \rightarrow \begin{array}{l} 8x + 8y = 24 \\ + 18x - 8y = 54 \\ \hline 26x = 78 \\ x = 3 \end{array}$$

$$\begin{aligned} 8(3) + 8y &= 24 \\ 24 + 8y &= 24 \\ 8y &= 0 \\ y &= 0 \end{aligned} \quad \therefore P_0I_3 \quad (3, 0)$$

$$8) \begin{cases} 5x + 6y = -13 \\ -10x - 10y = 20 \end{cases} \rightarrow \begin{array}{l} 5x + 6y = -13 \\ + 10x + 10y = -20 \\ \hline 2y = -6 \\ y = -3 \end{array}$$

$$\begin{aligned} 5x + 6(-3) &= -13 \\ 5x - 18 &= -13 \\ 5x &= 5 \\ x &= 1 \end{aligned}$$

$$\therefore P_0I_3 \quad (1, -3)$$

$$9) \begin{cases} -3x + 4y = -10 \\ 2x - 6y = -10 \end{cases} \rightarrow \begin{array}{l} -6x + 8y = -20 \\ + 6x - 18y = -30 \\ \hline -10y = -50 \\ y = 5 \end{array}$$

$$\begin{aligned} 2x - 6(5) &= -10 \\ 2x - 30 &= -10 \\ 2x &= 20 \\ x &= 10 \end{aligned} \quad \therefore P_0I_3 \quad (10, 5)$$

$$10) \begin{cases} 5x + 10y = 60 \\ -9x - 6y = 18 \end{cases} \rightarrow \begin{array}{l} 30x + 60y = 60 \\ + -90x - 60y = 180 \\ \hline -60x = 240 \\ x = -4 \end{array}$$

$$\begin{aligned} 5(-4) + 10y &= 60 \\ -20 + 10y &= 60 \\ 10y &= 80 \\ y &= 8 \end{aligned} \quad \therefore P_0I_3 \quad (-4, 8)$$

$$11) \begin{cases} 5x + 7y = 23 \\ -2x - 3y = -10 \end{cases} \rightarrow \begin{array}{l} 10x + 14y = 46 \\ -10x - 15y = -50 \\ \hline -y = -4 \\ y = 4 \end{array}$$

$$\begin{aligned} 5x + 7(4) &= 23 \\ 5x + 28 &= 23 \\ 5x &= -5 \\ x &= -1 \end{aligned}$$

$$\boxed{\therefore P_0I_3 \quad (-1, 4)}$$

$$12) \begin{cases} -10x - 7y = 6 \\ 9x - 4y = -26 \end{cases} \rightarrow \begin{array}{l} -90x - 63y = 54 \\ + 90x - 40y = -260 \\ \hline -23y = -206 \\ y = 2 \end{array} \quad \left. \begin{array}{l} 9x - 4(2) = -26 \\ 9x - 8 = -26 \\ 9x = -18 \\ x = -2 \end{array} \right\}$$

$$\therefore P_0I_3 \quad (-2, 2)$$